world-renowned Miocene beds of that locality. In the immediate vicinity are to be seen the petrified remains of an ancient forest. One of the stumps measured fifteen feet in diameter. The whole surrounding country shows the effects of igneous action in past ages. This is especially noticeable in the rear of the post-office in Florissant, where the granites are rent into fearful chasms, and where several deep, extinct geyser funnels may be seen, worn on the interior perfectly round and smooth by the action of water.

A trip was taken to Crystal Peak, four miles north of Florissant, where some fine Amazon stone was obtained. This completed the work of collecting, which, in every respect, has given very gratifying results.

S. WARD LOPER.

WESLEYAN UNIVERSITY,
November 5, 1898.

THE PROPOSED CATALOGUE OF SCIENTIFIC LITERATURE.

IN SCIENCE for October 28th there is a notice of the Second Conference on an International Catalogue of Scientific Literature, and it is said that a decimal system has been recommended.

At this critical time (before the work has been begun) there ought to be open discussion by cataloguers, and the most liberal attention given to the wishes of the users of such a catalogue. A repetition of the English catalogue, monumental but not used, is to be avoided. The most important characteristic of a catalogue of scientific literature ought to be its convenience to the user; this quality ought to prevail over all other qualities of such a catalogue. The possible wants of a user of the catalogue should be constantly thought of and provided for by the cataloguer.

The user is interested in his subject, probably not in cataloguing. He wants to find quickly and easily what has been published on a certain branch of Science. He does not want to learn a system of classification nor its method of application, as he would have to do in the case of the decimal system. He wants to find his subject in the alphabetical order, as he would in an encyclopædia; first the title, then the date, then the author and the size of the work.

The list of subjects should be derived from the titles as they are being collected, and it should be arranged in alphabetical order, for the convenience of the user.

In doubtful cases and where more than one branch of a subject is treated in a paper a title should be repeated under as many subjects as by the most liberal construction a user is likely to look for it, with too many repetitions rather than too few.

Ask the users if I am not right; and for whom else is the catalogue to be prepared?

In a case like that of the great English Catalogue of Scientific Papers, where the titles are arranged in the order of the authors' names with a number against every title, the numbers only need be collected and classified; or the numbers and the dates (though this would perhaps double the cost of publication). And here again the user should be considered by making the list of subjects large and by putting them in alphabetical order.

ALFRED TUCKERMAN.

NEW YORK, November 5, 1898.

SCIENTIFIC LITERATURE.

Charles Darwin and the Theory of Natural Selection. By EDWARD B. POULTON. New York, The Macmillan Co. 1896.

This was not only a very timely book when it appeared, but will always be one of the minor classics of evolutional literature. It is well and clearly written, compact, and a most handy book of reference for the student of Darwin's life and work, by a sincere and orthodox Darwinian. Not only does Professor Poulton give us the leading facts in Darwin's life, but in a happy and skillful way he tells the secret of his greatness, when and how the fact of evolution was impressed upon him, and the date when the idea of natural selection as an efficient cause was suggested to him. The two discoveries of Darwin which led him to reflect on the principle of evolution were, first, the fossil armadillos of the Pampean deposits and their relation to those now living, which led him to remark, in 1837, in his 'Naturalist's Voyage round the World:' "This wonderful relationship in the same continent between the

dead and the living will, I do not doubt, hereafter throw more light on the appearance of organic beings on our earth, and their disappearance from it, than any other class of facts." The other discovery was the astonishing diversity between the species or local varieties of the Galapagos Islands and the evident deviation of the fauna from the nearest continent. As he exclaims: "Reviewing the facts here given, one is astonished at the amount of creative force—if such an expression be used—displayed on these small, barren and rocky islands; and still more so at its diverse and yet analogous action on points so near each other." This occurrence of extremely localized forms is a matter of special interest at the present day, because it is due largely to isolation, and the case of the Galapagos Islands appears to be paralleled by the distribution of the land shells of the Hawaiian Islands, and the extremely slightly marked local varieties of the fishes of certain lakes in Indiana, those of the *Littorina littorea*, and the flat fish of the New England coast; the problem as to the causes of their origin being still a matter of discussion.

In several very interesting chapters the author tells us about the relations between Darwin and Wallace; with the former originating the discovery of the principle of natural selection, and with the latter that of the survival of the fittest, both receiving their inspiration from a common source, Malthus' suggestive book on Population. As is well known, Darwin brooded over his work for twenty years, all this period observing and collecting facts, and experimenting and testing the truth of his views, while Wallace 'thought out almost the whole of his theory' in two hours, completing his essay in three evenings.

The publication of the joint article by Darwin and Wallace, in 1858, is memorable not only in the annals of science, but in the history of morals. For the nobility of spirit and generosity shown by both of the young ardent naturalists, the fact that, instead of leading to jealousy and bitterness, it formed the beginning of a life-long friendship, and of mutual confidence and esteem between the two, is most creditable to them as men and as scientists.

The historic meeting o the Linnean Society when the joint essay was read appeared to have produced but little immediate effect. The first one to accept, in October, 1859, and by his own wide experience extend to variation in birds the principle of selection, was Canon Tristram.

The doctrine of the origin of species, as well as the principle of evolution in general, were ably supported by those intellectual giants Lyell, Hooker, Herbert Spencer, Huxley and Asa Gray, and the chapters in which the influence of these men on the acceptance and spread of Darwin's doctrines is described are not the least interesting in the book.

While the author is most sympathetic and appreciative, he becomes a grain narrow and provincial in his reference to Lamarck and his work, stating on p. 99 that the causes of evolution proposed by Lamarck are 'seriously disputed and it is possible that they may be ultimately abandoned.' On the contrary, we are now hearing, after they had laid *perdu* for a generation, a great deal about Lamarck's views as to the causes of variation, involving the influence of environment, of use and disuse, of isolation; even if we throw out use-inheritance, now in question, from a broad and catholic standpoint, we must concede to Lamarck the discovery of the fundamental causes of variation, and to Darwin and Wallace the discovery of the principles of competition and of selection.

A. S. PACKARD.

La structure du protoplasma et les théories sur l'hérédité et les grands problèms de la biologie générale. Par YVES DELAGE, Professeur a la Sorbonne. Paris, C. Reinwald et Cie., Libraires-éditeurs. 1895. 8vo. Pp. 878.

Although Professor Delage's volume was published in 1895, it is perhaps not too late to say a few words to call the attention of the American scientific public to this valuable work. Professor Delage occupies quite a unique position through the series of elaborate critical compilations which he has made. These compilations have all been much more than a series of literary studies, having all been based to a considerable degree upon the examination by the author of the material involved in his subject. We need only refer here to the many-